

(No Model.)

2 Sheets—Sheet 1.

W. B. BURNS.
CAR COUPLING.

No. 552,953.

Patented Jan. 14, 1896.

Fig. 1.

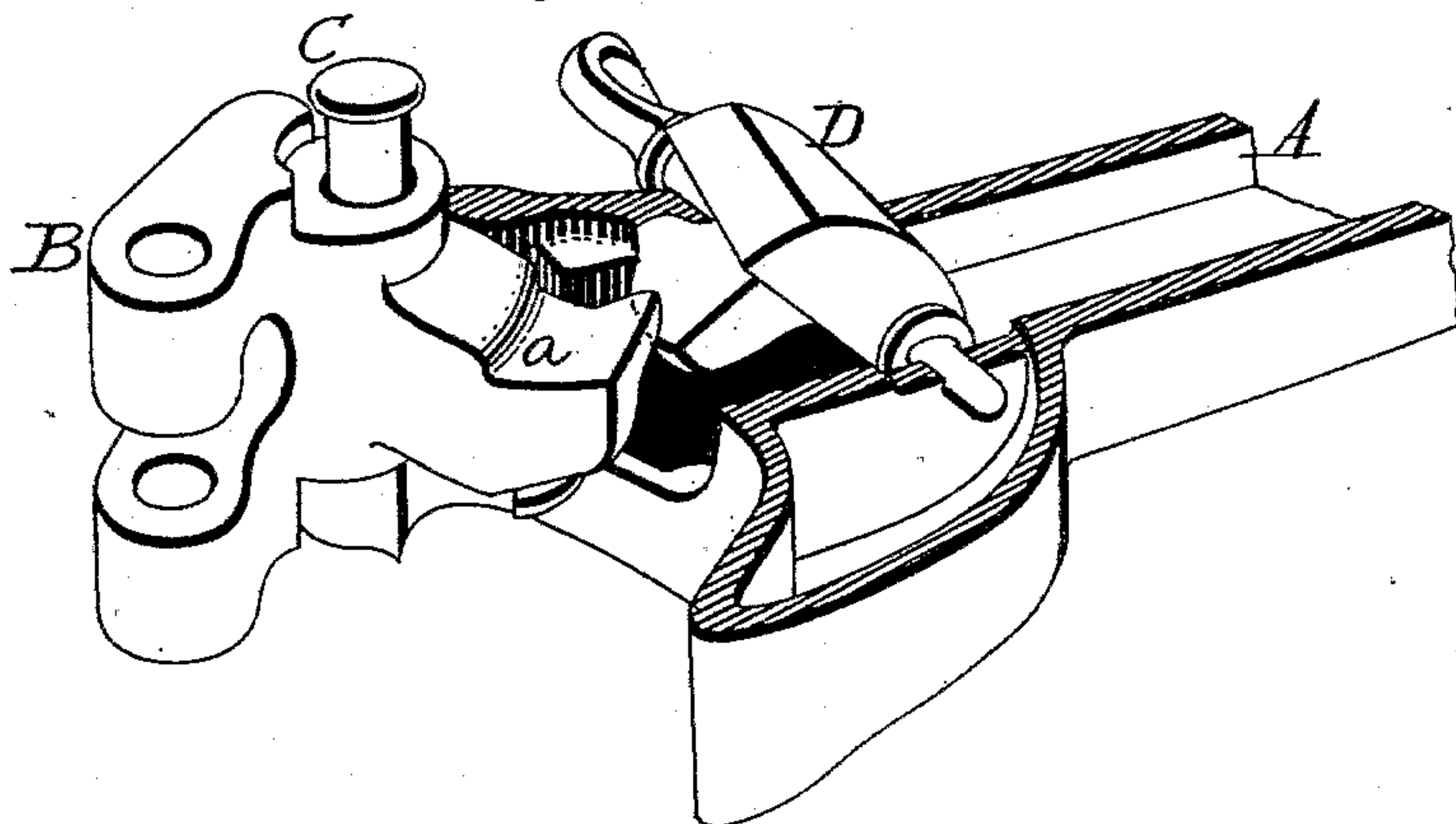


Fig. 2.

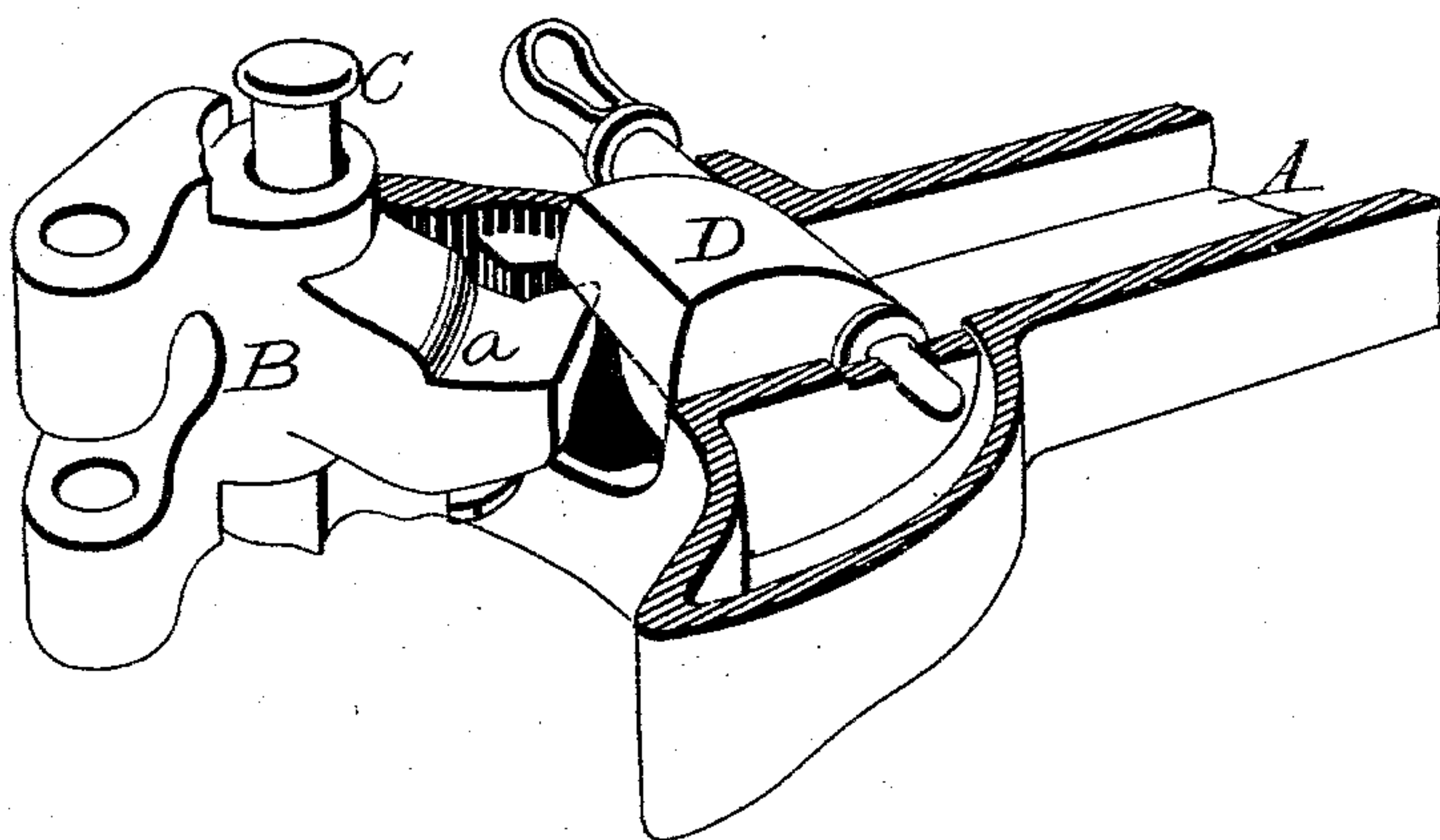


Fig. 3.

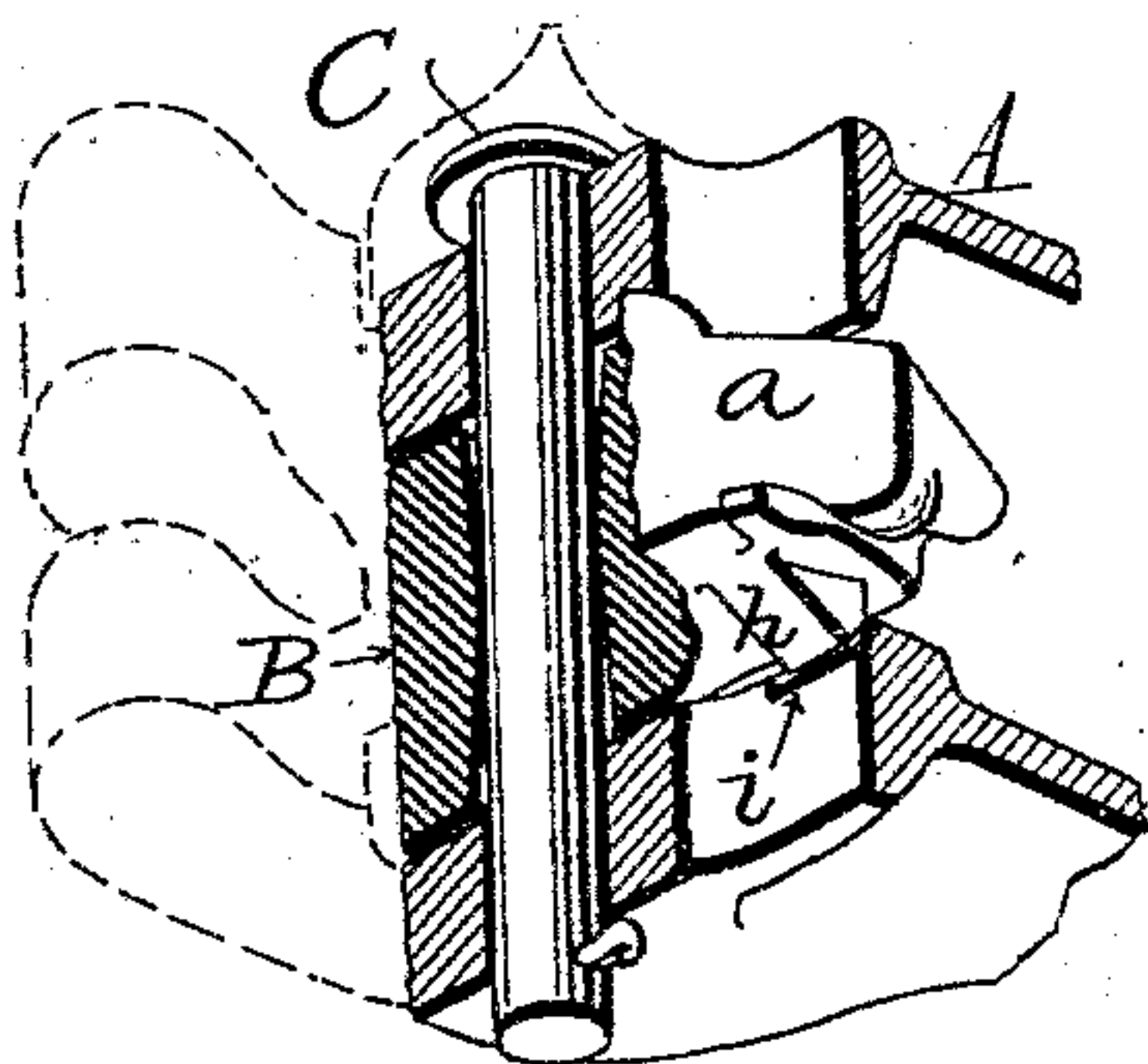
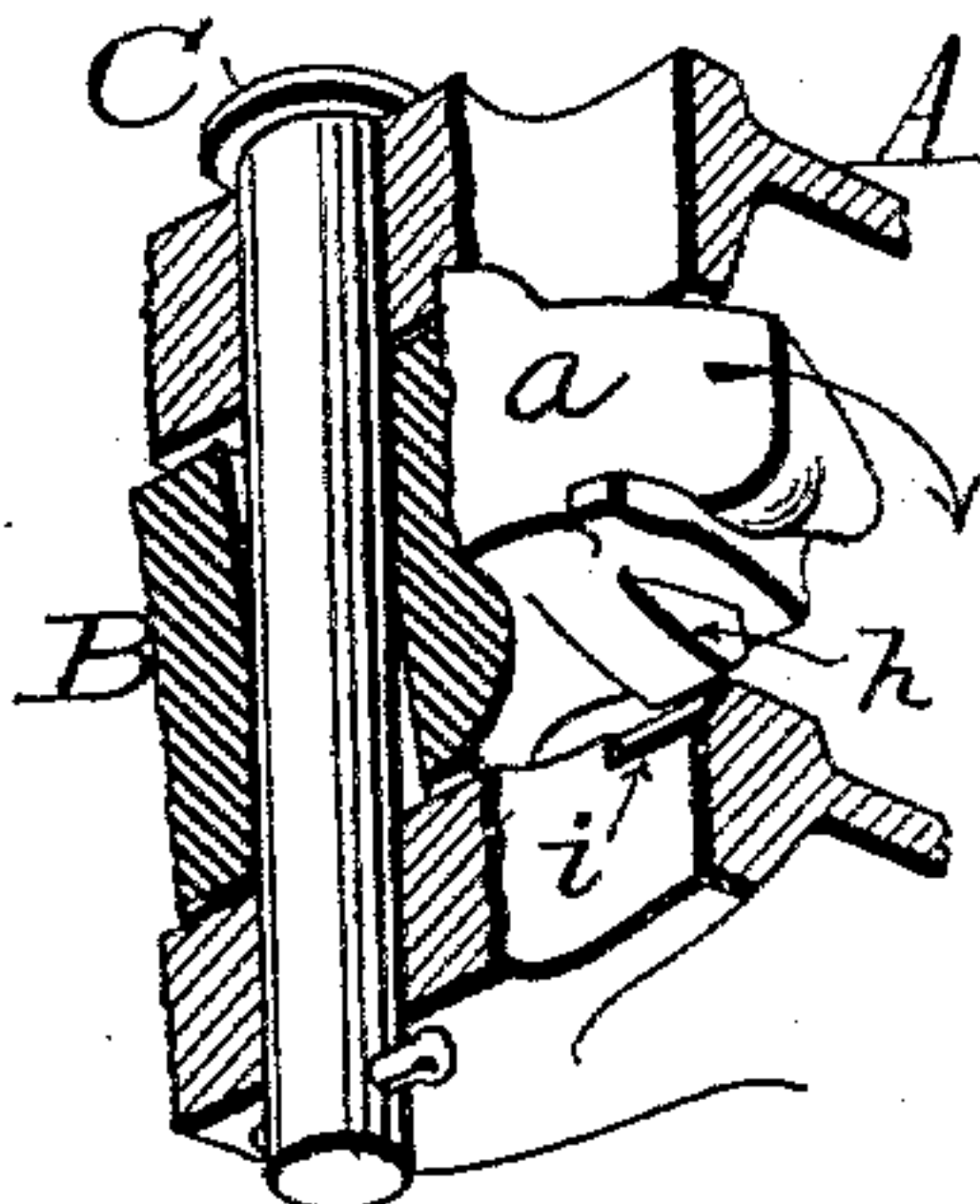


Fig. 4.



Witnesses

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 5.

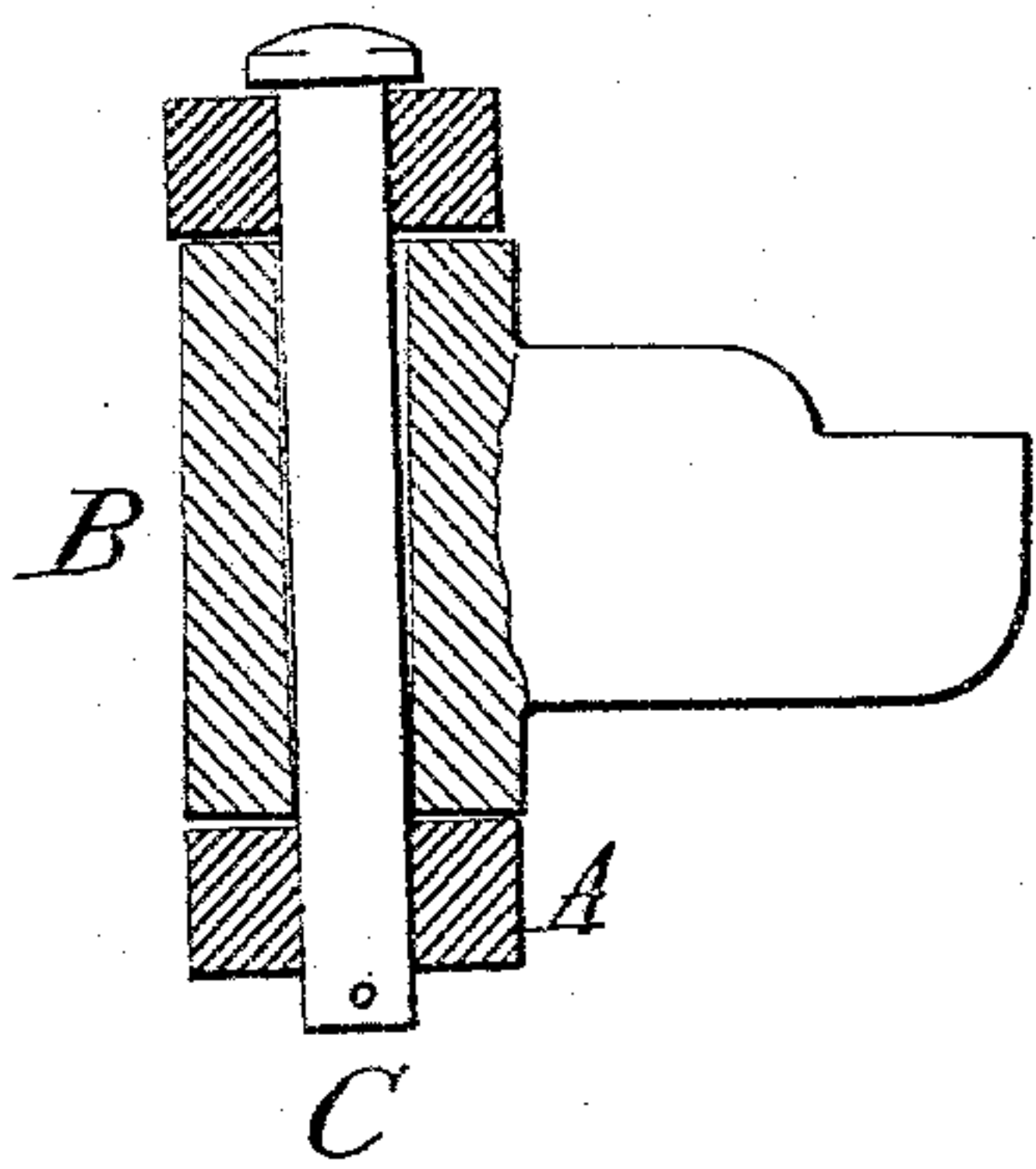


Fig. 6.

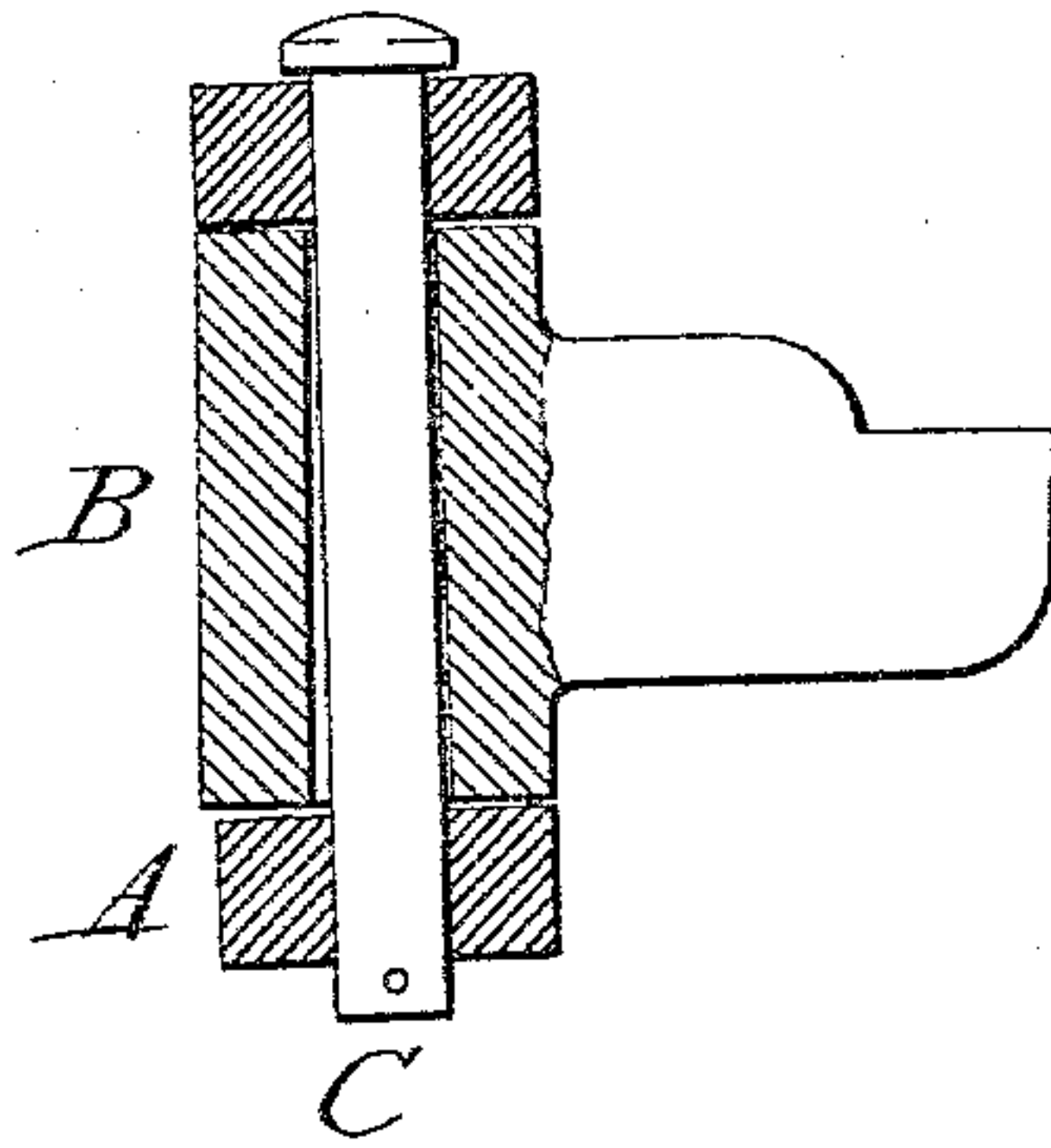


Fig. 7.

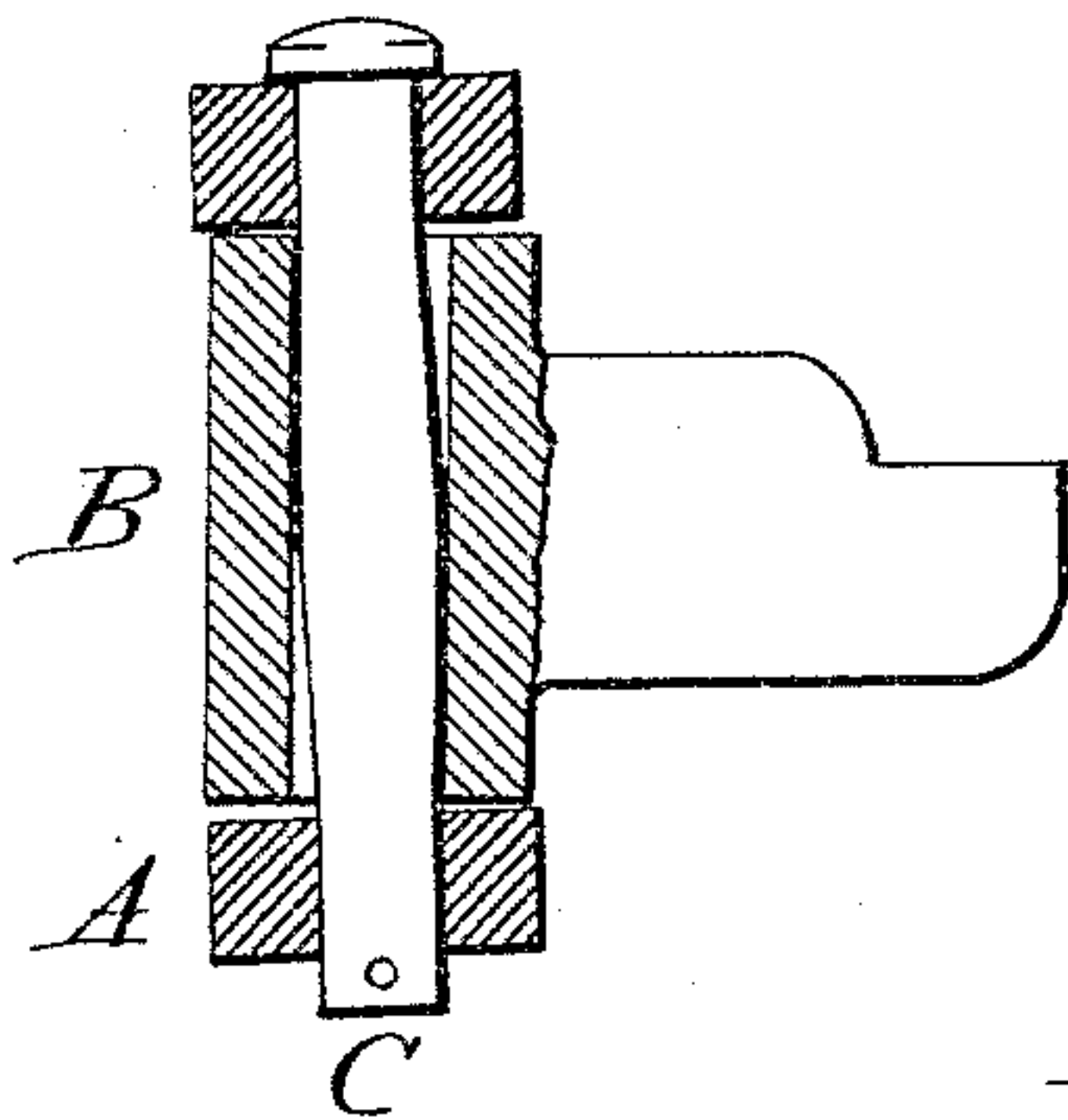


Fig. 8.

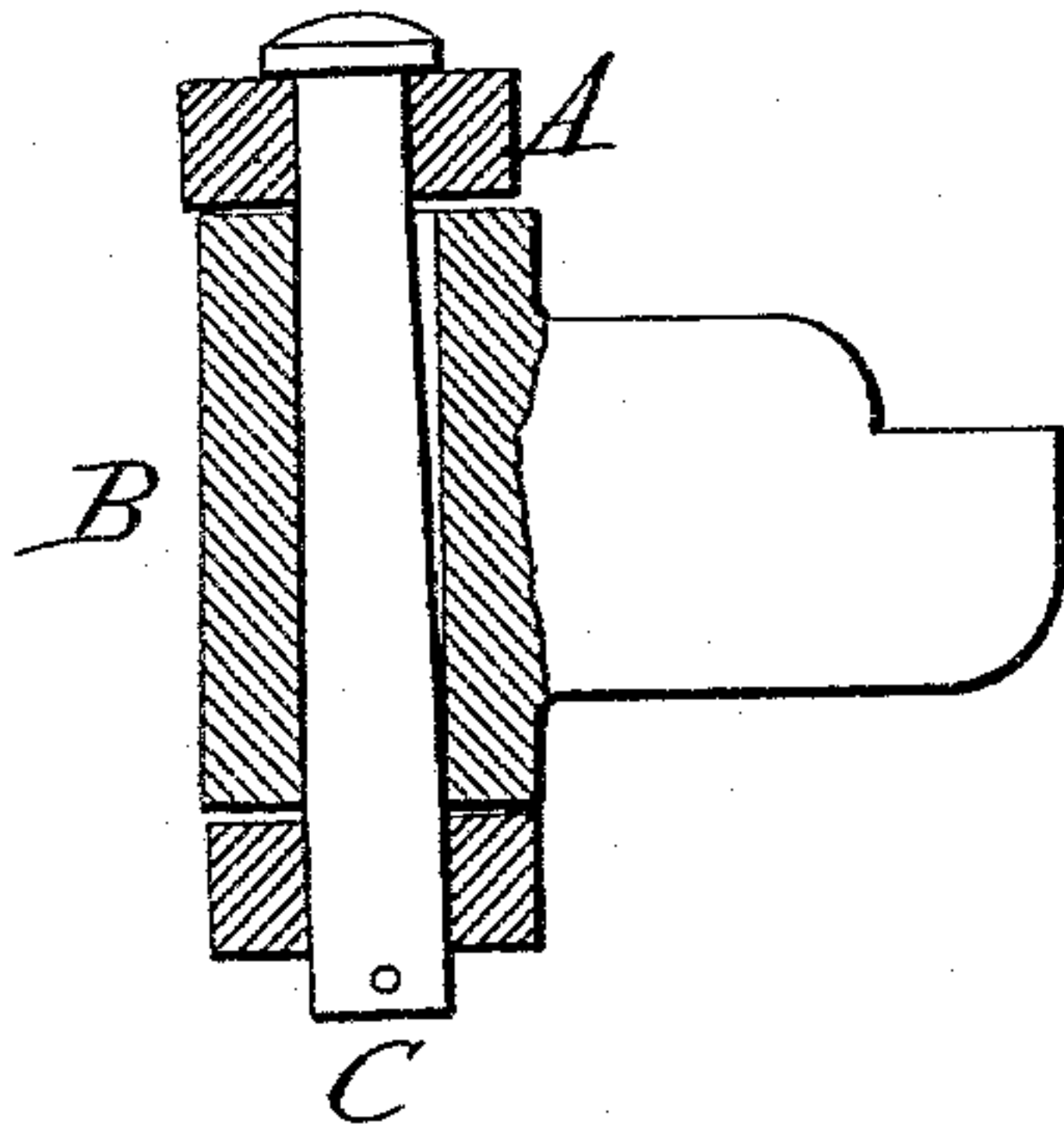
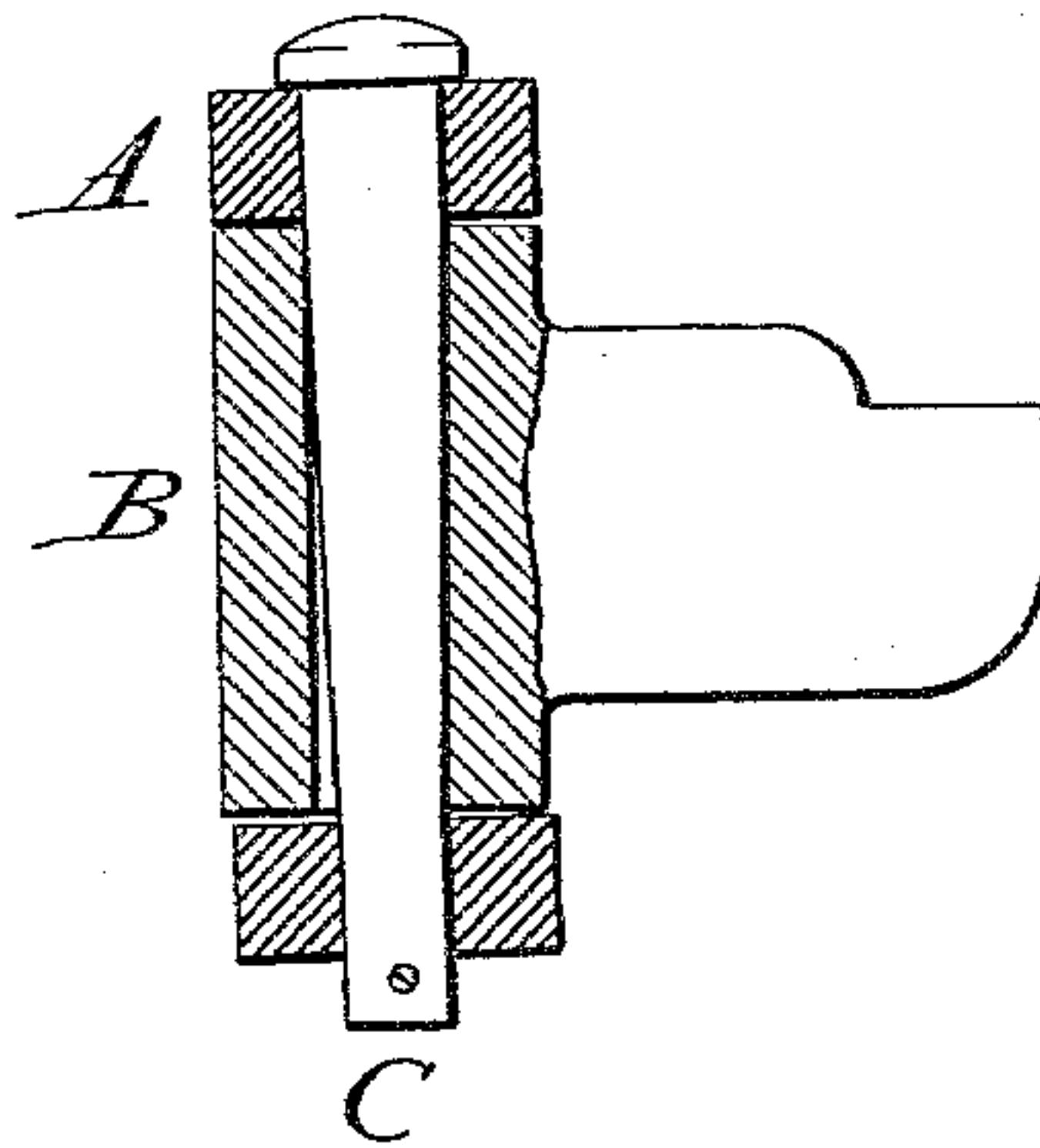


Fig. 9.



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UNITED STATES PATENT OFFICE.

WILLIS B. BURNS, OF SYRACUSE, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 552,953, dated January 14, 1896.

Application filed April 26, 1895. Serial No. 547,266. (No model.)

To all whom it may concern:

Be it known that I, WILLIS B. BURNS, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

My invention relates to car-couplers of the Janney type, and consists in a novel construction and arrangement of parts whereby the coupling member or knuckle is adapted to rock or tip laterally in opening and closing, and thereby to cause the engagement and disengagement of locking-shoulders of the knuckle and draw-head, whereby the knuckle is held open against any moderate force tending to close it, but is enabled to close upon the application of any considerable force.

The embodiment of the invention admits of considerable variation without departing from the principle or spirit thereof, the leading feature of which is capable of a tilting or rocking motion to effect the engagement and disengagement mentioned.

In the accompanying drawings, Figure 1 is a sectional perspective of a coupling embodying the general form and arrangement of draw-head and knuckle common to couplers of the Janney type, the parts being in the position they occupy at the instant of completing the opening of the coupling; Fig. 2, a similar view showing the parts as they stand after the knuckle has been opened and the locking-block has been permitted to fall back and rest upon the tail of the knuckle; and Figs. 3 to 9, inclusive, sectional perspective views illustrating the main feature of the invention in different forms.

The peculiar form and arrangement of the locking and opening mechanism constitute no part of the present case, and therefore will not be described in the present application.

A indicates the draw-head, and B the knuckle, hook, or coupling member arranged to swing in a horizontal plane about a heavy pivot pin or bolt C, which passes through ears of one of the arms of the forked or Y-shaped draw-head A, as usual. It is of course understood that such a draw-head with its knuckle and locking devices will be provided at either end of each car, the knuckles B of two cars interlocking to effect the coupling. When

the cars are to be uncoupled, or when prepared for coupling, the knuckle B of each of the draw-heads is thrown open to the position indicated in Figs. 1 and 2. If, while the knuckle is thus opened, the car be suddenly started forward, the inertia of the knuckle will in many instances cause its heavy outer portion to remain practically at rest while the draw-head advances, thus causing the knuckle to be closed. It being essential that the knuckle remain open, or in the position indicated in Figs. 1 and 2, until the cars are brought together in coupling, it is evident that this premature closing will result in delaying the operation, necessitating separation of the cars, the reopening of the coupling, and a second coming together of the cars. The accidental closing of the knuckle is liable to occur also by gravity when the car stands on a steep grade.

To avoid the accidental or premature closing of the knuckle, I provide it at some suitable point, preferably on the lower face of its inner arm *a*, with a lug, rib, or shoulder *h*, which, as the knuckle swings open, shall drop down in front of and engage against a shoulder *i* of the draw-head. The location and the form of these interlocking shoulders may be varied, but that indicated in the drawings is preferred, the engaging faces of the two being beveled to permit the lug *h* to ride up over the shoulder *i* when force is applied to turn the knuckle. In order that the lug *h* may drop in front of the shoulder *i*, or enter into engagement therewith, it is necessary that there be a slight vertical movement or play of the knuckle, and this may be either a tilting or rocking motion, or a bodily vertical movement.

In Figs. 3 and 4 I have represented the knuckle B as formed with a vertical hole to receive the pivot-pin C, which hole widens from a point between its ends toward each end, so that a narrow or restricted bearing of the block and pin is produced when the knuckle stands in its normal closed position. When, however, the knuckle is swung outward to the position indicated in Fig. 3, its weight at one side of the pin C will cause it to tilt or rock and to fall at the side, thereby carrying the lug *h* downward in front of the bearing-shoulder *i*. When, however, force is applied to

the outer member of the knuckle B, it causes, first, a tilting or rocking of the knuckle B, so that the lug *h* is lifted upward, off, and clear of the shoulder *i*, as shown in Fig. 4, the continuing pressure or force applied to the outer member serving then to move it to its closed position.

It will of course be understood, and is indicated in Figs. 3 and 4, that sufficient space is left between the upper and lower faces of knuckle B and the ears between which it is hinged or pivoted to permit the tilting thus described.

In Fig. 5 I have represented the hole through the knuckle as increasing in width from its lower to its upper end, in which case the knuckle when opened will tilt to the position there indicated, the widened upper end of the hole permitting such tilting to take place.

In Fig. 6 the hole is represented as tapering in the opposite direction, the action being, however, essentially the same, and the center about which the block tilts or rocks being at the upper instead of the lower side of the knuckle.

In Fig. 7 I have represented the pin as made with a swell or enlargement at a point between the upper and lower faces of the knuckle, thus giving a restricted or narrow bearing between the pin and the walls of the hole, essentially the same as in Figs. 3 and 4.

In Fig. 8 I have represented the pin tapering from its lower toward its upper end, and in Fig. 9 I have shown said pin as tapering from its upper toward its lower end, thus giving the same effect that it produces by the tapering of the holes in Figs. 5 and 6.

As above indicated, the form and location of the locking shoulders may be varied, the only essential features being that they be sufficient to hold the knuckle against accidental or premature closing, and that sufficient vertical play be allowed either through tilting or through bodily lifting to effect a disengage-

ment of the parts preparatory to closing. The weight of the knuckle being quite considerable, it will be seen that considerable force will be required to effect its closing, or to disengage the shoulders *h* and *i*—a force greater than will be exerted through the concussion of the cars, or by gravity, in the event of standing upon a considerable grade or incline; but accidental disengagement is further prevented by reason of the heavy locking-block D resting upon the arm *a* of knuckle B, as shown in Fig. 2, when the knuckle is opened.

The invention is applicable generally to car-couplers of the Janney type, regardless of the form and construction of the locking devices, and the weight of the locking-block D is in no manner essential to its operation. It merely incidentally contributes, when used, to the same result.

Having thus described my invention, what I claim is—

1. In combination with a drawhead, a coupling member or knuckle, and a pivot pin or bolt connecting said parts, the knuckle being adapted to swing about its pivot and to tilt or rock to permit engagement and disengagement of the knuckle and drawhead, to hold the knuckle open, substantially as set forth.

2. In combination with a drawhead, and with a coupling member or knuckle, a pivot pin or bolt connecting said parts and having a limited bearing in the knuckle substantially as described, whereby said knuckle is enabled to rock or tip laterally to permit engagement and disengagement of the knuckle and drawhead, and to swing freely about the pivot pin.

In witness whereof I hereunto set my hand in the presence of two witnesses.

WILLIS B. BURNS.

Witnesses:

HARRISON HOYT,

FRANK J. FARRINGTON, Jr.